

Example 1:

$$\dot{V}_{\text{stdref}} = 1000.00 \text{ ft}^3/\text{min} = 0.471948 \text{ m}^3/\text{s}$$

$$p_{\text{std}} = 29.9213 \text{ in Hg} @ 32 \text{ }^{\circ}\text{F} = 101.325 \text{ kPa} = 101325 \text{ Pa} = 101325 \text{ kg}/(\text{m}\cdot\text{s}^2)$$

$$T_{\text{std}} = 68.0 \text{ }^{\circ}\text{F} = 293.15 \text{ K}$$

$$R = 8.314472 \text{ J}/(\text{mol}\cdot\text{K}) = 8.314472 \text{ (m}^2\cdot\text{kg})/(\text{s}^2\cdot\text{mol}\cdot\text{K})$$

$$\dot{n}_{\text{ref}} = \frac{0.471948 \cdot 101325}{293.15 \cdot 8.314472}$$

$$\dot{n}_{\text{ref}} = 19.619 \text{ mol/s}$$

Example 2:

$$\dot{m}_{\text{ref}} = 17.2683 \text{ kg/min} = 287.805 \text{ g/s}$$

$$M_{\text{mix}} = 28.7805 \text{ g/mol}$$

$$\dot{n}_{\text{ref}} = \frac{287.805}{28.7805}$$

$$\dot{n}_{\text{ref}} = 10.0000 \text{ mol/s}$$

(b) PDP calibration calculations. For each restrictor position, calculate the following

values from the mean values determined in § 1065.340, as follows:

(1) PDP volume pumped per revolution, V_{rev} (m^3/r):

$$V_{\text{rev}} = \frac{\bar{\dot{n}}_{\text{ref}} \cdot R \cdot \bar{T}_{\text{in}}}{\bar{p}_{\text{in}} \cdot \bar{f}_{\text{nPDP}}}$$

Eq. 1065.640-2

Example: